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Social relations and loneliness among older patients consulting their general practitioner

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ABSTRACT

INTRODUCTION: Social relations are important for people and affect their quality of life, morbidity and mortality. This holds true especially for older persons. General practitioners (GPs) are in a unique position to address social relations and loneliness; however, no GP population-based studies have assessed older patients' social relations and loneliness. The aim of this study was to analyse the social relations and loneliness of patients aged 65 years and above consulting their GP.

METHODS: This survey counted the participation of 12 general practices in the Capital Region of Denmark. During a three-week period, the practices invited their patients to fill out a questionnaire on health, social relations and loneliness.

RESULTS: Of 767 eligible patients, 474 were included and 461 answered one or more items about social participation or loneliness. A total of 36.2% had a high, 45.5% had a medium and 18.3% had a low social participation; and 17.9% often or occasionally felt lonely. Higher social participation was associated with a lower degree of loneliness. However, several patients answered in a manner not fitting the expected association. Anxiety and depressive symptoms, living alone and low social participation were the most important predictive variables for loneliness. Only 15.2% of the lonely patients had talked to their GP about their loneliness.

CONCLUSIONS: A total of 17.9% of older patients stated that they were lonely either often or occasionally. The most important predictors were: anxiety and depressive symptoms, living alone and low social participation. The lonely patients rarely shared these issues with their GP. The study also reveals a need to discuss the assessment of social participation and loneliness in both research and practice.

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Besides affecting quality of life, limited social relation and loneliness among older persons increase the risk of functional decline and the risk of both physical and mental morbidity (particularly cardiovascular disease and depression) and premature mortality [1-4]. The influence on mortality has been found to be comparable to established risk factors such as physical activity, obesity and smoking [5]. In Denmark, it is assumed that poor social relationships cause 1,000-1,500 annual deaths, equivalent to about 2% of all deaths [6]. The prevalence of loneliness among older persons varies in international studies [7].

The general practitioner (GP) may play a significant role in identifying lonely older persons and in helping prevent that a feeling of loneliness leads to illness and social isolation [8]. The aim of this study was to describe and analyse social relations and loneliness among older patients consulting their GP.

METHODS

Material

This study was a survey counting 12 general practices with a total of 20 GPs located in the Capital Region of Denmark. During a three-week period, each practice consecutively invited their patients aged 65 years and above, regardless of the reason for their visit, to fill out a questionnaire regarding health, social relations and loneliness. Patients gave informed written consent for their participation. Excluded were patients who were unable to speak or read Danish, unable to answer the questionnaire, unable to sign an informed consent form, and patients with severe acute or terminal illness (**Figure 1**). Data were collected from February to September 2014. The first author instructed all participating practices in data collection. The GPs received an honorarium of 18 euro for each recruited patient.

Questionnaire

The questionnaire consisted of three parts:

1. Socio-demographics, use of homecare and patient affiliation to the practice.
2. Information about health, smoking and alcohol consumption:
   a. Self-rated health measured by a single item from the Short Form 36 (SF-36) health questionnaire: "In general, would you say your health is" with the following five response categories: excellent, good, fair, poor and very poor [9].
   b. Subjective memory complaints measured by a single item used in primary care studies: "How would you assess your memory?" with

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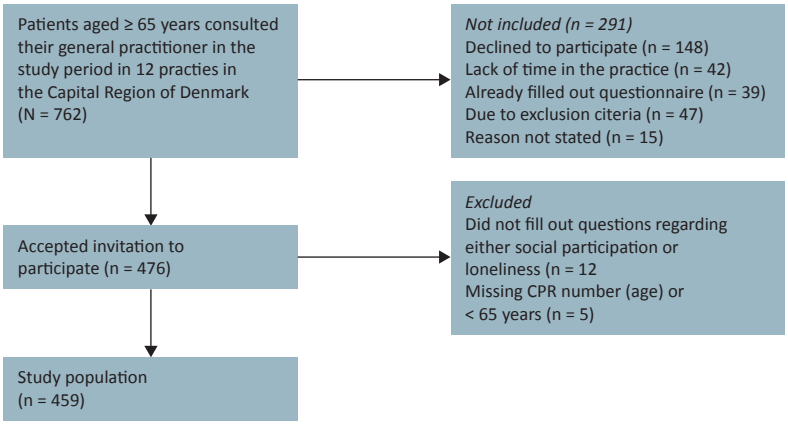
FIGURE 1

Flow chart of the study population.



Loneliness and low social participation is common among older patients, but is rarely discussed with general practitioners. The study reveals patient characteristics associated with loneliness that are usable for general practitioners when identifying these patients.

the following five response categories: excellent, good, less good, poor, and miserable [10].

c. Quality of life: The patients completed the Danish Validated Version of the EQ-5D. The EQ-5D measures five dimensions – mobility, self-care, usual activities, pain/-discomfort, and anxiety/depression – each by three levels of severity [11].

d. Information on mobility and ability to see/read a newspaper text and hear a normal conversation with minimum three people using items from the Danish national health interview surveys [12].

e. Information about smoking and drinking habits using items from the Danish national health interview surveys [12]. The question on drinking habits was simplified to use *per week* instead of *each day during the past week.*

3. Information about social participation and feelings of loneliness:

a. Social participation: Social participation within the last months was measured by three questions: "How often did you" a) have visitors at home? b) visit others? and c) participate in social activities outside your home? With the response categories "At least once a week", "Less than once a week" and "Never" [1].

b. Loneliness was measured by the following item: "Do you ever feel lonely?" With the response categories "Yes – often", "Yes – occasionally", "Yes - but rarely" and "No". We also used questions from the Danish national health interview surveys [12]: "Does it happen that you are alone even though you want to be with others?" and "Do you have someone to talk to if you have problems or need support?"

c. An item for those who were lonely: Asking them to state if they had talked with their GP about their loneliness.

We computed two scores based on the three social participation questions. One was the score introduced by Avlund et al [1]. Here the answer "weekly" is assigned one point and the other answers zero points. A total of three points is considered high social participation; while a total score of 0-2 is considered lower social participation. Furthermore, we constructed our own three-level score, since we assumed a likely profound difference between the categories "less than once a week" and "never" and therefore considered that a dichotomised scale might be too crude. The score we constructed was divided into "high", "medium" and "low" social participation. We assigned one point to the answer "weekly", two points to "less than once a week" and three points to the answer "never". In the cumulated score, three points was considered high social participation equivalent to the scale by Avlund et al, 4-5 points medium and six points and above were considered low social participation.

The loneliness question was dichotomised. The responses "Yes – often" and "Yes – occasionally" were labelled "lonely" and the responses "Yes – but rarely" and "No" were labelled "not lonely".

Statistics

Differences in variables stratified according to loneliness were analysed using chi-square tests. We used Monte

Carlo simulated p-values in cases of a table cell count of less than six observations. For variables with $p < 0.05$, the associations between the variables and loneliness were analysed using univariate logistic regression. Age and gender were unadjusted; the remaining variables were adjusted for age and gender, and odds ratios were computed. The comparative impact of the variables on the probability of being lonely was assessed by relative importance [13], i.e. the mean increase in model fit attributable to the addition of a variable to the model (variables with $p < 0.05$ were included in the relative importance algorithm). Ethics The Scientific Ethical Committee for Copenhagen has been informed about the study and assessed it unnecessary to notify (R. no. H-C-FSP-2011-04). The Danish Data Protection Agency (R. no. 2013-41-2393) and the DSAM Multipractice Study Committee (R. no. MPU 24-2013) approved the project.

Trial registration: not relevant.

RESULTS

Of the 762 eligible patients, 476 were included in the study. Of the 291 patients not included in the study, 148 declined participation, 39 had filled out the questionnaire at a previous consultation and 47 were excluded based on the exclusion criteria. A total of 459 patients filled out at least one item about social participation or loneliness (Figure 1). In comparison with the included patients, the non-included participants were significantly older (40% versus 57% above 75 years) ($p = 0.0002$), but there was no difference in gender distribution (58% and 59% women) ($p = 0.7751$).

Table 1 presents the distribution of the variables in total and divided according to loneliness. In the three individual social participation questions, 59-68% responded "at least once a week". A cumulated social participation score could be calculated for 437 patients (95%). Based on the scale by Avlund et al, 63.8% had low social participation. Based on our scale, these were further divided into 45.5% with medium and 18.3% with low social participation. Additionally, 17.9% of the patients reported feeling lonely either often or occasionally.

Several items were associated with loneliness ($p < 0.05$) (Table 1). As seen in **Table 2**, the odds of feeling lonely were 3.5 times higher for those living alone and four times higher for those with the lowest social participation compared with those with the highest social participation in our scale. Further, the odds were 39 times higher for those stating often or occasionally being alone when wanting to be with others, and ten times higher for those who only sometimes had people to talk to when having problems or needing support compared with those who often had someone. Additionally, the odds of feeling lonely were 2.5 times higher for people receiving

TABLE 1

Characteristics of patients stratified by loneliness (N = 459). The values are n (%).

	Total	Not lonely	Lonely	p-value
Loneliness				–
Lonely	82 (17.9)	–	–	
Not lonely	375 (82.1)	–	–	
Age, yrs				0.0747
65-74	274 (59.7)	232 (84.7)	42 (15.3)	
≥ 75	185 (40.3)	143 (78.1)	40 (21.9)	
Chronic diseases				0.2875
Yes	342 (76.5)	276 (81.2)	64 (18.8)	
No	105 (23.5)	90 (85.7)	15 (14.3)	
Gender				0.0219
Men	192 (41.8)	166 (86.9)	25 (13.1)	
Women	267 (58.2)	209 (78.6)	57 (21.4)	
Length of education				0.6588
< 7 yrs	38 (8.6)	31 (81.6)	7 (18.4)	
7-10 yrs	260 (58.7)	218 (84.2)	41 (15.8)	
> 10 yrs	145 (32.7)	117 (80.7)	28 (19.3)	
Living alone				< 0.0001
Yes	206 (46.6)	148 (72.5)	56 (27.5)	
No	236 (53.4)	215 (91.1)	21 (8.9)	
Home care				0.0007
Yes	54 (12.2)	35 (66.0)	18 (34.0)	
No	390 (87.8)	330 (84.8)	59 (15.2)	
Self-rated health				0.0002
Excellent/very good	133 (30.2)	117 (88.6)	15 (11.4)	
Good	215 (48.7)	183 (85.1)	32 (14.9)	
Less good/bad	93 (21.1)	63 (68.5)	29 (31.5)	
Mobility				0.2787
No problems	319 (71.4)	267 (83.7)	52 (16.3)	
Some/severe problems	128 (28.6)	100 (79.4)	26 (20.6)	
Personal care				0.3817[a]
No problems	435 (97.8)	361 (83.4)	72 (16.6)	
Some/severe problems	10 (2.2)	7 (70.0)	3 (30.0)	
Usual activities				0.0001
No problems	326 (73.1)	283 (87.1)	42 (12.9)	
Some/severe problems	120 (26.9)	85 (71.4)	34 (28.6)	
Pain/discomfort				0.0507
No pain or discomfort	180 (40.5)	156 (86.7)	24 (13.3)	
Moderate/severe pain or discomfort	264 (59.5)	209 (79.5)	54 (20.5)	
Anxiety/depression				< 0.0001
No anxiety or depression	362 (82.1)	325 (89.8)	37 (10.2)	
Moderate/severe anxiety or depression	79 (17.9)	40 (51.3)	38 (48.7)	
Read a normal newspaper				0.4831[a]
Yes/yes with some problems	434 (97.1)	357 (82.5)	76 (17.5)	
Yes, but it is difficult/no	13 (2.9)	12 (92.3)	1 (7.7)	
Hearing a normal conversation				0.0109
Yes/yes with some problems	419 (95.2)	350 (83.5)	69 (16.5)	
Yes but it is difficult/no	21 (4.8)	13 (61.9)	8 (38.1)	
Walk 400 m without rest				0.2930
Yes/yes with some problems	391 (88.3)	324 (82.9)	67 (17.1)	
Yes but it is difficult/no	52 (11.7)	40 (76.9)	12 (23.1)	
Walk up or down stairs without rest				0.1332
Yes/yes with some problems	402 (90.3)	335 (83.5)	66 (16.5)	
Yes but it is difficult/no	43 (9.7)	32 (74.4)	11 (25.6)	
Carry 5 kg				0.2065
Yes/yes with some problems	379 (85.4)	316 (83.4)	63 (16.6)	
Yes but it is difficult/no	65 (14.6)	50 (76.9)	15 (23.1)	

CONTINUES ››

TABLE 1, CONTINUED

Characteristics of patients stratified by loneliness (N = 459). The values are n (%).

	Total	Not lonely	Lonely	p-value
Smoking status				0.6001
Yes	80 (17.8)	63 (78.8)	17 (21.2)	
Have stopped	218 (48.4)	181 (83.4)	36 (16.6)	
Never smoked	152 (33.8)	127 (83.5)	25 (16.5)	
Alcohol intake				0.3702
None	104 (29.0)	80 (77.7)	23 (22.3)	
Normal	181 (50.6)	151 (83.4)	30 (16.6)	
Too high	73 (20.4)	62 (84.9)	11 (15.1)	
Visits by friends or family in the past month				0.0028[a]
At least once a week	306 (67.7)	265 (86.9)	40 (13.1)	
Less than once a week	132 (29.2)	96 (72.7)	36 (27.3)	
Never	14 (3.1)	10 (76.9)	3 (23.1)	
Visited friends or family in the past month				0.0006[a]
At least once a week	264 (58.5)	231 (87.5)	33 (12.5)	
Less than once a week	174 (38.6)	130 (75.1)	43 (24.9)	
Never	13 (2.9)	8 (61.5)	5 (38.5)	
Participated in leisure activities outside the home in the past month				0.0143
At least once a week	275 (62.1)	233 (84.7)	42 (15.3)	
Less than once a week	106 (23.9)	87 (82.1)	19 (17.9)	
Never	62 (14.0)	42 (68.8)	19 (31.2)	
Our social participation score				< 0.0001
High	158 (36.2)	138 (87.3)	20 (12.7)	
Medium	199 (45.5)	170 (85.4)	29 (14.6)	
Low	80 (18.3)	50 (63.3)	29 (36.7)	
Social participation score by Avlund et al [1]				0.0317
High	158 (36.2)	138 (87.3)	20 (12.7)	
Low	279 (63.8)	220 (79.1)	58 (20.9)	
Does it occur that you are alone even though you want to be together with others?				< 0.0001[a]
Yes, often	18 (4.0)	2 (11.1)	16 (88.9)	
Yes, occasionally	72 (15.8)	30 (41,7)	42 (58.3)	
Yes, rarely	88 (19.3)	76 (86.4)	12 (13.6)	
No	278 (61.0)	266 (95.7)	12 (4.3)	
Do you have someone to talk to if you need it?				< 0.0001[a]
Yes, often	303 (66.4)	273 (90.4)	29 (9.6)	
Yes, most of the time	102 (22.4)	69 (67.7)	33 (32.3)	
Yes, sometimes	31 (6.8)	15 (48.4)	16 (51.6)	
No	20 (4.4)	16 (80.0)	4 (20.0)	
Have you talked to general practitioner about being lonely?				–
Yes	–	–	12 (15.2)	
No	–	–	67 (84.8)	

a) Monte Carlo simulated.

home care, 1.8 times higher for women, 3.3 times higher for those with the lowest compared with the highest self-rated health, 2.9 times higher for those with difficulties hearing a normal conversation and lastly eight times higher for people feeling anxious or depressed.

Additionally, there was a trend towards an association between age and loneliness (p = 0.0747) (Table 1). In an additional analysis with age divided into three levels (65-74, 75-84, ≥ 85 years), the p-value decreased to 0.0518, and there was a significant odds ratio of 2.6 between the youngest and oldest group (p = 0.0211).

Based on relative importance, the three most predictive variables for feelings of loneliness were whether patients were anxious or depressed (39%), were living alone (27%) and their level of social participation (21%), whereas the remaining variables each explained 0.5-4% of the variance (**Table 3**).

Despite a clear association between loneliness and the three variables social participation, being alone when wanting to be with others and not having someone to talk to in case of problems or need for support, several patients answered in a manner not fitting the expected association (Table 1). For instance, 12.7% with high social participation reported feeling lonely and, conversely, 63.3% with low social participation reported not feeling lonely. Among the patients who responded that they often or occasionally felt lonely, only 15.2% had discussed their loneliness with their GP (Table 1).

DISCUSSION

In this study, 17.9% of the older patients felt lonely either often or occasionally. The prevalence of low social participation and loneliness in our general practice setting is similar to that found in population-based studies [8, 14]. We found a significant association between loneliness and social participation, being a woman, living alone, receiving home care, being unable to perform usual activities, anxiety/depression, ability to hear a normal conversation and self-rated health. These variables have also been identified in other studies [2, 7, 8, 14]. We also found a trend towards the oldest patients being lonelier. Three of the associated variables accounted for almost all of the variation in reported loneliness; anxiety or depression, living alone and social participation. As expected, loneliness increased with lower social participation. However, several patients were lonely despite having a high social participation or were not lonely despite having a low social participation. A review by Courtin & Knapp [2] also reported a mixed result for the association between social isolation and loneliness.

The measures used are debated in the research about social relations and loneliness [2, 15-17]. Some state that asking directly about loneliness might be stigmatising and might result in incorrect answers [15, 18]. Often, scales based on multiple questions like the UCLA or the Jong Gierveld Loneliness Scale are used, but the contents and the differences between the scales are also debated [2, 16]. We chose to ask directly about loneliness, but also about social participation, being unwantedly alone and having someone to talk to. We found that thought these issues were significantly associated with loneliness; several respondents' answers fell outside of the expected asso-

ciations. The study also indicates that a dichotomised version of social participation like the one by Avlund el al might be too crude. Here all questions need to be answered with "weekly" to obtain a score of high social participation and we found big differences in the feelings of loneliness among people with medium and low social participation on our scale. Lastly, it should be noted that to each of the three social participation questions, around two thirds answered "at least once a week", but when combined in a social participation score only about one third had a high social participation. Hence, this study underlines the need for discussion of the assessment method both in research and practice.

Given the influence of loneliness and low social participation on health and wellbeing, these dimensions of social life are important public health issues [7]. GPs have been proposed as the professional group that is most likely to come into contact with these people, and they are therefore in a unique position to identify them [8]. Municipal nurses conducting preventive home visits with older people will likely have similar opportunities. Based on this study, GPs and nurses should be attentive to loneliness, especially among those who are anxious or depressed, who have low social participation and those living alone, but also among those receiving home care, those who have difficulties performing usual activities or hearing a normal conversation, and finally those with a low self-rated health and likely also the oldest patients. We found that lonely patients rarely discuss these issues with their GP, and a qualitative study by van Ravesteijn et al [19], reported that GPs rarely asked patients directly about loneliness, but either asked indirectly or not
at all. In this context practitioners should be aware of our finding that information about social participation is not always transferable to people's feelings of loneliness.

As a general-practice-based study, it is a strength that the sampling of participants reflects daily clinical practice and a population in which GPs have an opportunity to consider problems with low social participation and loneliness. However, it is a limitation that we only included patients who are able to visit the practice and to fill out the questionnaire. By not including those receiving home visits, very old and frail patients are probably underrepresented, and they are most likely more lonely than our respondents.

CONCLUSIONS

Among older patients consulting their GP, 17.9% reported being lonely. Only 15.2% of the lonely patients had discussed their loneliness with their GP. Loneliness was associated with low social participation (visits to and by others and leisure activities), being a woman, living alone, receiving home care, not being able to perform usual activities, being unable to hear a normal conversa-

TABLE 2

Odds ratios for feelings of loneliness.

	Odds ratio (95% confidence interval)	p-value
Our social participation score		
High	1 (reference)	–
Medium	1.18 (0.64-2.19)	0.6017
Low	4.15 (2.13-8.11)	< 0.0001
Social participation score by Avlund et al [1]		
High	1 (reference)	–
Low	1.83 (1.05-3.20)	0.0339
Gender		
Men	1 (reference)	-
Women	1.81 (1.09-3.02)	0.0231
Live alone		
No	1 (reference)	–
Yes	3.53 (2.02-6.19)	< 0.0001
Receives home care		
No	1 (reference)	
Yes	2.45 (1.26-4.76)	0.0082
Self-rated health		
Excellent/very good	1 (reference)	–
Good	1.28 (0.65-2.49)	0.4764
Less good/bad	3.26 (1.61-6.63)	0.0011
Usual activities		
No problems	1 (reference)	–
Moderate/extreme problems	2.46 (1.46-4.16)	0.0007
Pain/discomfort		
No pain or discomfort	1 (reference)	–
Moderate/ severe pain or discomfort	1.52 (0.90-2.60)	0.1208
Anxiety/depression		
No anxiety or depression	1 (reference)	–
Moderate/severe anxiety or depression	8.04 (4.57-14.17)	< 0.0001
Hearing a normal conversation		
Yes/yes with some problems	1 (reference)	–
Yes but it is difficult/no	2.86 (1.12-7.32)	0.0284
Visits by friends or family in the past month		
At least once a week	1 (reference)	–
Less than once a week	2.50 (1.50-4.18)	0.0005
Never	1.99 (0.52-7.68)	0.3170
Visited friends or family in the past month		
At least once a week	1 (reference)	–
Less than once a week	2.30 (1.38-3.82)	0.0013
Never	3.62 (1.10-11.88)	0.0339
Participated in leisure activities outside the home in the past month		
At least once a week	1 (reference)	–
Less than once a week	1.34 (0.73-2.46)	0.3405
Never	2.60 (1.36-4.95)	0.0037
Does it occur that you are alone even though you want to be together with others?		
No	1 (reference)	–
Yes, rarely	3.46 (1.49-8.04)	0.0039
Yes, often/yes, occasionally	39.29 (19.01-81.22)	< 0.0001
Do you have someone to talk to if you need it?		
Yes, often	1 (reference)	–
Yes, most of the time	4.50 (2.56-7.917)	< 0.0001
Yes, sometimes	10.04 (4.50-22.38)	< 0.0001
No	2.35 (0.74-7.51)	0.1484

TABLE 3

The relative importance (RI) of characteristics in predicting loneliness.

	RI
Anxiety/depression	0.3937
Living alone	0.2710
Our social particitation score	0.2076
Usual activities	0.0370
Self-rated health	0.0321
Hearing a normal conversation	0.0238
Home care	0.0210
Pain/discomfort	0.0085
Gender	0.0054

tion, self-rated health and feelings of anxiety or depression. GPs should be aware of potential loneliness among patients with these characteristics, especially those who are anxious or depressed, those with low social participation or living alone since these characteristics are highly predictive of feelings of loneliness. They should also be aware that information about social participation is not always transferable to patients' feelings of loneliness since several patients were lonely despite having high social participation or were not lonely despite low social participation.

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